

Clinical Decision Support (CDS) Content and Health Level 7 (HL7)- compliant Knowledge Artifacts (KNARTs)

Primary Care: Anaphylaxis Treatment Protocol Clinical Content White Paper

Department of Veterans Affairs (VA)



**Knowledge Based Systems (KBS)
Office of Informatics and Information Governance (OIIG)
Clinical Decision Support (CDS)**

Clinical Decision Support (CDS) Content and Health Level 7 (HL7)-compliant Knowledge Artifacts (KNARTs): Primary Care: Anaphylaxis Treatment Protocol Clinical Content White Paper

by Department of Veterans Affairs (VA)

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Table 1. Relevant KNART Information: Primary Care: Anaphylaxis Treatment Protocol

KNART Name	Associated CLIN
Anaphylaxis Treatment Protocol - Order Set	CLIN0008BA

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Introduction

The VA is committed to improving the ability of clinicians to provide care for patients while increasing quality, safety, and efficiency. Recognizing the importance of standardizing clinical knowledge in support of this goal, VA is implementing the HL7 Knowledge Artifact Specification for a wide range of VA clinical use cases. Knowledge Artifacts, referred to as *KNARTs*, enable the structuring and encoding of clinical knowledge so the knowledge can be integrated with electronic health records to enable clinical decision support.

The purpose of this Clinical Content White Paper (*CCWP*) is to capture the clinical context and intent of *KNART* use cases in sufficient detail to provide the *KNART* authoring team with the clinical source material to construct the corresponding knowledge artifacts using the HL7 Knowledge Artifact Specification. This paper has been developed using material from a variety of sources: VA artifacts, clinical practice guidelines, evidence in the body of medical literature, and clinical expertise. After reviewing these sources, the material has been synthesized and harmonized under the guidance of VA subject matter experts to reflect clinical intent for this use case.

Unless otherwise noted, items within this white paper (e.g., documentation template fields, orderable items, etc.) are chosen to reflect the clinical intent at the time of creation. To provide an exhaustive list of all possible items and their variations is beyond the scope of this work.

Conventions Used

Conventions used within the knowledge artifact descriptions include:

<obtain> : Indicates a prompt to obtain the information listed

- If possible, the requested information should be obtained from the underlying system(s). Otherwise, prompting the user for information may be required.
- The technical and clinical notes associated with a section should be consulted for specific constraints on the information (e.g., time-frame, patient interview, etc.).
- Unless otherwise noted, *<obtain>* indicates to obtain the most recent observation. It is recognized that this default time-frame value may be altered by future implementations.

[...]: Square brackets enclose explanatory text that indicates some action on the part of the user, or general guidance to the clinical or technical teams. Examples include, but are not limited to:

[Begin ...] , *[End ...]* : Indicates the start and end of specific areas to clearly delineate them for technical purposes.

[Activate ...] : Initiates another knowledge artifact or knowledge artifact section.

[Section Prompt: ...] : If this section is applicable, then the following prompt should be displayed to the user.

[Section Selection Behavior: ...] : Indicates technical constraints or considerations for the selection of items within the section.

[Attach: ...] : Indicates that the specified item should be attached to the documentation template if available.

[Link: ...] : Indicates that rather than attaching an item, a link should be included in the documentation template.

[Clinical Comment: ...] : Indicates clinical rationale or guidance.

[Technical Note: ...] : Indicates technical considerations or notes.

[If ...] : Indicates the beginning of a conditional section.

[Else, ...] : Indicates the beginning of the alternative branch of a conditional section.

[End if ...] : Indicates the end of a conditional section.

☐ *[Check boxes]* : Indicates items that should be selected based upon the section selection behavior.

Chapter 1. Anaphylaxis Treatment Protocol

1. Clinical Context

Anaphylaxis is a moderately common and immediately life-threatening condition. Prompt access to guideline-endorsed treatments is essential for successful resuscitation, and appropriate patient education is a critical part of follow-up to reduce the risk of future anaphylactic events. Disseminating best practices regarding anaphylaxis across the VA has the potential to enhance patient safety and improve patient outcomes.

Table 1.1. Clinical Context Domains

Target User	Provider to include Emergency Medicine
Patient	Adult patient
Priority	Routine
Specialty	Emergency Medicine
Location	Outpatient

2. Knowledge Artifacts

This section describes the knowledge artifact that is intended to facilitate initiation of appropriate orders for follow-up after an anaphylactic event. The order set includes appropriate follow-up of a stable adult patient with a recent diagnosis of anaphylaxis, including allergy consult, epinephrine auto-injector (Epi-Pen), and epinephrine auto-injector training device.

The knowledge artifact defines this clinical use case and is described in detail in the following section is:

- Order Set
 - Orderable items
 - Includes logic for appropriate display of the order set

Chapter 2. Order Set

[Begin Order Set.]

1. Knowledge Narrative

[See Clinical Context in Chapter 1.]

2. Medications

[Begin Medications.]

[Clinical Comment: This section is applicable to stable adult patients with a recent diagnosis of anaphylaxis.]

[Section Selection Behavior: Select only one. Optional.]

- ☐ epinephrine auto-injector 0.3 mg solution intramuscular 1 time inject into anterolateral thigh as needed; repeat once if needed; seek medical care immediately upon use. Quantity 2 auto-injectors with 2 refills (routine)
- ☐ epinephrine auto-injector 0.3 mg solution subcutaneous 1 time inject into anterolateral thigh as needed; repeat once if needed; seek medical care immediately upon use. Quantity 2 auto-injectors with 2 refills (routine)

[End Medications.]

3. Consults and Referrals

[Begin Consults and Referrals.]

[Clinical Comment: This section is applicable to stable adult patients with a recent diagnosis of anaphylaxis.]

[Section Selection Behavior: Select any or none. Optional.]

- ☐ consult Allergy and Immunology Service to evaluate patient following episode of anaphylaxis (routine)

[End Consults and Referrals.]

4. Patient and Caregiver Education

[Begin Patient and Caregiver Education.]

[Clinical Comment: This section is applicable to stable adult patients with a recent diagnosis of anaphylaxis.]

[Section Selection Behavior: Select any or none. Optional.]

- ☐ Use of epinephrine autoinjector education (routine)
- ☐ Anaphylaxis action plan education (routine)
- ☐ Medications that can interfere with anaphylaxis treatment education (routine)
- ☐ Avoidance of potential anaphylaxis triggers education (routine)
- ☐ Medical identification jewelry education (routine)
- ☐ Medication cross-reactivity education (routine)
- ☐ Food cross-reactivity education (routine)

[End Patient and Caregiver Education.]

[End Order Set.]

Bibliography/Evidence

- U.S. National Library of Medicine. *EPIPEN- epinephrine injection; EPIPEN JR- epinephrine injection [Mylan Specialty L.P.]*. *DailyMed website*. Updated February 2017.
<https://dailymed.nlm.nih.gov/dailymed/drugInfo.cfm?setid=7560c201-9246-487c-a13b-6295db04274a>.
- [Lieberman, 2015] P Lieberman, RA Nicklas, C Randolph, and et al. “Anaphylaxis--a practice parameter update 2015”. *Ann Allergy Asthma Immunol*. 2015. 115. 5. 341-384.
- [Campbell, 2014] RL Campbell, JT Li, RA Nicklas, AT Sadosty, Members of the Joint Task Force, and Practice Parameter Workgroup. “Emergency department diagnosis and treatment of anaphylaxis: a practice parameter”. *Ann Allergy Asthma Immunol*. 2014. 113. 6. 599-608.

Appendix A. Acronyms/Abbreviations

Acronyms	Description
CDS	Clinical Decision Support
HL7	Health Level 7
KBS	Knowledge Based Systems
KNART	Knowledge Artifact
OIIG	Office of Informatics and Information Governance
SME	Subject Matter Expert
TO	Task Order
VA	Department of Veteran Affairs